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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,338	10/19/2005	Ludovic Poupinet	123936	5788

25944 7590 02/20/2009

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ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
02/20/2009	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/535,338
Filing Date: October 19, 2005
Appellant(s): POUPINET ET AL.

William P. Berridge
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/09/2008 appealing from the Office action mailed 07/22/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on 12/08/2008 has been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,405,706	Takahashi et al.	09-1983
6,177,168	Stevens	01-2001
4,450,553	Holster et al.	05-1984
5,354,590	Tamura et al.	10-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 12-14 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (4,405,706).

With regard to claims 12 and 13, Takahashi et al. teach a "heat mode" recording layer, which is equivalent to ablation recording, thermal deformation, or mechanical deformation recording, which is analogous to applicants' preferred recording method in their specification (see page 4, lines 2-4). The recording layer is comprised of the metals seen at col. 3, line 52 to col. 4, line 19. They specifically mention at col. 3, lines 56-58 that the metals may be used alone or in combination, and the preferable metals include zinc and tellurium. The recording layer of Takahashi et al. would necessarily

comprise a front face and a rear face; however, Takahashi et al. fail to disclose the specific atomic percentage range of applicants' claim 12 and the more specific exact atomic percentages of applicants' claim 13.

It is well-known in the field of optical recording media to experimentally vary the percentages of metals contained with the alloy of a recording layer, and therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to experimentally vary the atomic percentages of zinc and tellurium in Takahashi et al.'s recording layer to whatever ratio, including those claimed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to test all percentages of the preferable metals, zinc and tellurium, to discover the appropriate percentages that had the greatest sensitivity and largest signal-to-noise with respect to the heat mode recording method.

With regard to claim 14, Takahashi et al. disclose that the active alloy layer would be 5 to 200 nm thick, which completely encompasses applicants' claimed range (col. 3, lines 59-63).

With regard to claim 17, there may be an additional metal layer laminated on the rear face of the recording layer (col. 4, lines 3-4).

With regard to claim 18, the additional metal layer may be 1 to 150 nm thick, which completely encompasses applicants' claimed range (col. 4, lines 27-33).

With regard to claim 19, the additional metal layer may comprise *inter alia* silver and copper (col. 4, line 9).

With regard to claim 20, there may be a protective covering on the rear face of the recording layer (col. 4, lines 34-65).

2. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (4,405,706), as applied to claim 12, in view of either Stevens (6,177,168) or Holster et al. (4,450,553).

Takahashi et al. disclose all of the limitations of applicants' claim 12 in section 6 above; however they fail to specifically disclose a semi-reflective layer arranged on the front face having a thickness of 4-10 nm and made of the metals or an alloy of the metals in claim 16.

Stevens or Holster et al. both teach semi-reflective layers for use in optical recording media. Stevens teaches a gold semi-reflective layer on the front-face of two recording layers in a dual-sided recording medium. Holster et al. teach a zinc selenide partial reflective layer in a single-sided dual recording layer recording medium (col. 10, lines 31-54).

Since Stevens, Holster et al. and Takahashi et al. are all drawn to optical recording media, it would have been obvious to one having ordinary skill in the art at the time the invention was made to place an additional layer 10 nm thick semi-reflective layer on the front face side of the recording medium. Semi-reflective layers are well-known in the field of optical recording media, and furthermore one of ordinary skill would have recognized that the results of the combination would have been predictable. These layers are known to allow tuning of the light intensity that reaches the recording

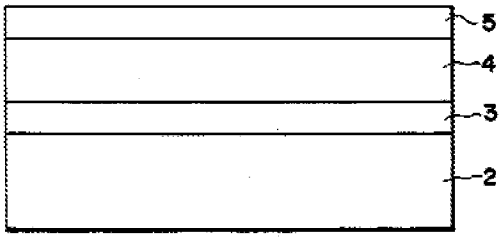
layer or any other subsequent layer. Additionally, one of ordinary skill would have recognized that each of the elements would have performed the same in combination as they had separately.

3. Claim 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (4,405,706), as applied to claim 20, in view of Tamura et al. (5,354,590).

Takahashi et al. disclose all of the limitations of claim 20 in section 6 above. They also disclose that the protective layer may be 0.01 to 500 microns; however they fail to disclose using polydimethylsiloxane-based protective layer or that the protective layer is deformable.

Tamura et al. disclose the optical recording medium of Figure 1.

FIG. 1



The device comprises a recording layer **3** and a protective (recording-assistance) layer **4** situated on the back face thereof. The layer **4** is disclosed at col. 3, lines 27-39, included in these are silicone rubbers. The thickness of the layer **4** is disclosed at col. 7, lines 8-10, included in this is the range of 3-50 microns. Tamura et al. also disclose a

"hardness after cure" at col. 4, lines 28-34. The Examiner takes the position that these hardness factors would include a deformable-type silicone rubber. Additionally, the terms "silicone rubber" and "elastic polymer" both imply a flexible and deformable material.

Since Shigematsu et al. and Tamura et al. are both drawn to optical recording media, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the prior art recording layer of Shigematsu et al. with the recording-assistance/protective layer of Tamura et al. The results of which would have been obvious to one having ordinary skill, specifically one would have expected the sensitivity of the recording layer to improve and the device would have been further protected from mechanical deformation. Additionally, one of ordinary skill would have recognized that each of these elements would have performed the same in combination as they had separately. The motivation for using a silicone protective layer would be to provide an optical recording medium that was less likely to scratch or be destroyed by the environment.

Polydimethylsiloxane is a form of silicone rubber and it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a polydimethylsiloxane form of silicone rubber as the silicone rubber layer of Tamura et al.; further, it would have been obvious to vary the hardness of the polydimethylsiloxane to degree desired by applicants. One of ordinary skill would understand altering the hardness factor to arrive at a recording medium that would be properly protected from scratches.

(10) Response to Argument

Appellants first argue that it would not have been obvious to one having ordinary skill in the art to make a bimetallic alloy. Then they subsequently argue that it would not have been obvious to form a bimetallic Zn-Te alloy from the list of preferred metals disclosed in Takahashi et al. They argue in this regard that the Examiner used hindsight reasoning in forming a bimetallic alloy with the metals Zn and Te from the preferred list of seven metals.

The Examiner respectfully disagrees and notes that Takahashi et al. disclose at col. 3, lines 52-58 a list of metals for a heat mode recording layer, and further qualify a subset of preferred metals. In this same section they state that these metals may be "used individually or in combination." The use of the term “in combination” clearly denotes that metals may be combined in an alloy. A bimetallic alloy is a form of a "combination" of metals, and given the fact that Takahashi et al. do not specifically exclude bimetallic alloys; the Examiner deems that Takahashi et al. disclose bimetallic alloys. Given the fact that the disclosure of Takahashi et al. includes bimetallic alloys, it is unclear how the Examiner’s analysis is based upon impermissible hindsight as there is no hindsight necessary in this analysis.

Having established this, the Examiner now turns his attention to selection of zinc and tellurium in said bimetallic alloy. Given the fact that Takahashi et al. disclose a list of preferred metals, including the metals Zn and Te, given the fact that the list of preferred metals from which to choose is small, i.e. 7 metals, and also given the fact

that Takahashi et al. disclose that these metals may be "used individually or in combination," it is clearly envisaged by the Examiner to form an alloy of any of the preferred metals listed, including the bimetallic alloy Zn-Te. Given the fact that the disclosure of Takahashi et al. includes the bimetallic alloy Zn-Te, it is unclear how the Examiner's analysis is based upon impermissible hindsight as there is no hindsight necessary in this analysis.

With specific regard to Appellants' assertion that the Examiner is using an "obvious to try" standard and that such standard would be inappropriate to support this rejection, the Examiner first notes that it is the Appellants' position as first raised by Appellants in the amendment filed 11/21/2008, not the Examiner's, that an "obvious to try" standard has been used by the Examiner. The Examiner's position remains that Takahashi et al. explicitly disclose a preferred list of 7 metals, which includes combinations of such metals; however, assuming *arguendo* that the Examiner applied an "obvious to try" standard, the Examiner notes that Appellants and the MPEP define this rationale as "finding that there was a finite number of identified, predictable potential solutions to a recognized need or problem." Appellants then go on to state that there would be over 100 possible combinations of metals from the preferred metals listing (in actuality it would be exactly 127 combinations total, i.e. ${}^{7}C_{1} + {}^{7}C_{2} + {}^{7}C_{3} + {}^{7}C_{4} + {}^{7}C_{5} + {}^{7}C_{6} + {}^{7}C_{7}$ using mathematical notation), and finally they state that "[t]hus, it is not possible to find that there was a finite number of identified, predictable potential solution to a recognized need or problem." This line of argument is unclear as Appellants have clearly provided a finite number of possibilities, and the Examiner has demonstrated

that one of ordinary skill can quickly identify the total number of possibilities, thereby making it finite.

The Examiner also respectfully disagree with Appellants' assertion that this is a "large number of possible combinations" that would not be expected to offer predictable outcomes. The Examiner notes that 127 possible solutions are clearly not the same as 10,000,000 solutions, and the fact remains that 127 possible solutions are not at all a "large number of possible combinations" as has been suggested. It would have been obvious to one having ordinary skill in the art to use any of the identifiable 127 possible recording layers with a reasonable expectation of success in making a heat mode recording layer as indicated by Takahashi et al.

Appellants also argue that it would not have been obvious to one having ordinary skill in the art to optimize the relative percentages of zinc and tellurium in a bimetallic alloy.

The Examiner disagrees and notes that the basis for optimization is a result-effective variable based upon what is known in the prior art at the time of the invention. The Examiner provided a basis for optimizing these result-effective; specifically, promoting sensitivity of the recording layer and effectuating the largest signal-to-noise of recorded marks. These result-effective variables would have been known to one having ordinary skill in the art of optical disc manufacture at the time the present invention was made, and they also would have been known at the time the invention of Takahashi et al. was made. Also it has been held that "[g]enerally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the

prior art unless there is evidence indicating such concentration or temperature is critical. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." Please see MPEP 2144.05 and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). The Examiner maintains that one of ordinary skill in the art of optical recording media would understand that promoting sensitivity of the recording layer and effectuating the largest signal-to-noise of recorded marks are always involved in the manufacture of optical recording layers. It is also noted that Appellants have not shown any criticality for the percentages claimed or other evidence of secondary considerations (see Appeal Brief Appendix B).

In response to Appellants' argument that the examiner's conclusion of obviousness for the claimed atomic percentages is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The Examiner once again respectfully suggests that promoting sensitivity of the recording layer and effectuating the largest signal-to-noise of recorded marks are factors that are not unique to the recording layer of Appellants or Takahashi et al., but rather are concepts that are universally known to those of ordinary skill in the art of optical recording media.

Appellants then argue that Takahashi et al. do not provide any indication that the ratio of Zn and Te is a result-effective variable, and note that the Examiner has erred in relying on the disclosure at col. 4, lines 1-19 of Takahashi et al. because that section teaches that "another material or additive" may be added.

The Examiner once again relies upon his previous argument that promoting sensitivity of the recording layer and effectuating the largest signal-to-noise of recorded marks are concepts that are universally known to those of ordinary skill in the art of optical recording media, and would not have to be explicitly stated by Takahashi et al. as it would have been understood by Takahashi et al. and those of ordinary skill in the art; furthermore, with regard to the section at col. 4, lines 1-19, the Examiner was referring to this section as evidence only. The Examiner was not suggesting the inclusion of “anther material or additive,” but rather was merely providing a showing of evidence that the materials listed there, including Zn and Te, are known to provide increased sensitivity. Given the fact that the metals Zn and Te are also known to comprise the recording layer of Takahashi et al. (col. 3, lines 52-58), it is clear to the Examiner that they would affect the sensitivity of the recording layer.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Gerard T Higgins/

Examiner, Art Unit 1794

Conferees:

/Callie E. Shosho/

Supervisory Patent Examiner, Art Unit 1794

/Jennifer Michener/

QAS, TC1700